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# *guide for* **GRAPHICS COORDINATORS**



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Prepared by

*Bureau of Intelligence and Research*

*Department of State*

For the use of  
Graphics Coordinators

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GUIDE FOR GRAPHICS COORDINATORS

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#### GUIDE FOR GRAPHICS COORDINATORS

##### INTRODUCTION

Ground photography is one of the most important sources of information on foreign areas. Government agencies are making increasing use of photographs for special projects and studies, and for planning and training programs. The Department supports the Graphics Register which provides a central service from its comprehensive collection of photographs and motion picture films on all areas and subjects. The value of the support rendered by pictorial materials has been amply demonstrated and the Department encourages active participation in this world-wide program.

Although present files are world-wide in scope it is essential that gaps in coverage be filled and that the collection be continuously augmented and updated by the receipt of current photographs of selected subjects. Contributions from overseas posts are most important in this respect because local commercial and other sources are unable to supply adequate area and subject coverage.

##### GRAPHICS COORDINATORS

The importance of photographic procurement has resulted in the designation of a Graphics Coordinator at each post to encourage and support the photographic collection program. The Graphics Coordinator is a point of control for the program and can request cameras, film, funds, and specific photo collection guidance appropriate to the capabilities

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of the post. Upon reassignment, Graphics Coordinators should notify the Department, and the post should name a new coordinator and inform the Department.

#### SUGGESTED SOURCES

Many excellent photographs may be obtained, often without cost, from newspapers, magazines, travel folders and other published sources. Newspaper pictures will not generally reproduce well; glossy prints from the files of such publishers will often be available. Funds are available for necessary purchases.

American citizens living abroad, or those travelling on business or for pleasure, often possess interesting and valuable photographs which they are willing to lend to the Government for copying.

Business firms, steamship lines, railroad companies, airlines and travel agencies, etc., are likely to have photographs which they distribute without cost, or which they may be willing to lend for review and possible reproduction locally or in Washington.

Valuable pictures may be available by purchase or otherwise from commercial photographic houses, from collections, or from exhibitions. Such sources should be examined and pertinent information on the source, extent and nature of coverage determined. If significant costs are involved, details as to cost and terms of sale should be forwarded to the Department for consideration and approval.

Graphics Coordinators are urged to enlist assistance of other mission personnel where feasible and to apprise selected officers of photographic requirements.

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Graphics Coordinators may use their own judgement in selecting suitable participants and coordinating their activities. This will prevent unnecessary duplication of effort and take maximum advantage of photographic opportunities available through travel, etc. Special care should be taken to control operations in accordance with local sensitivities. Questions of propriety should be resolved by the Graphics Coordinator or such other officers as may be designated for this purpose by the Chiefs of Mission.

#### ORIGINAL PHOTOGRAPHS BY OVERSEAS PERSONNEL

Although desired pictorial coverage will be obtainable from the sources suggested previously, overseas personnel are often able to supplement this coverage. They are urged to submit current photographs of possible interest from their personal collections. Prints or negatives will be given careful handling and returned promptly.

Availability of Cameras and Film--Cameras and film can be made available upon request to officers who are in a position to take original pictures of any of the subjects listed in this handbook. Inasmuch as the number of cameras available may be limited at times, requests may be deferred in preference to requests for cameras from posts located in areas where other sources are limited or non-existent. In any case, the Graphics Coordinator will normally have a 35mm camera available for staff use. Requests for film (specifying size, type and quantity) and for cameras should be sent to the Department by Operations Memoranda, Subject: FOREIGN PHOTOGRAPHS. Cameras shall not be purchased without the prior authorization of the Department. The Graphics Coordinator is responsible for the equipment assigned and must sign a receipt for it. When he is transferred the new Coordinator should send a new receipt to the Department.

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Processing and Reproduction--Exposed undeveloped film, negatives or prints may be sent to the Department for processing and reproduction. If requested, copies of any or all photographs submitted will be returned for use of the post. Some personal photography may be appropriate and may even be desirable in special cases. These are always returned to the photographer.

#### SUBMISSION OF PHOTOGRAPHS AND OTHER MATERIAL

Use of Operations Memorandum or DS-4 Transmittals--All questions concerning the collection of photographs, requests for film, etc. should be referred to the Department via Operations Memorandum, Subject: FOREIGN PHOTOGRAPHS. Photographs, unprocessed film, or negatives should be submitted as enclosures to the Operations Memorandum or DS-4 Transmittal. Identifying information may be set forth in the correspondence and should be correlated with the exposure sequence, marked negatives or prints. The information (in the case of negatives or prints) may be attached to the individual items. The normal processing time is three weeks.

#### IDENTIFICATION

The accuracy and detail of identifying information add a great deal to the usefulness of any photograph submitted.

Location--A precise location materially expedites the processing of photography for the central files. The country, province and city or village are basic. Within a city, street address or distance and direction from an established landmark should be given. Outside of urban areas the distance and direction from a city, road junction or known point of ref-

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erence should be provided. In some cases geographic or map coordinates should be given if available.

Other Descriptive Information--Supplementary data such as the name of a building or installation should be supplied. A word or two on function, products, capacity, etc., may be invaluable. The width and surface of roads and bridges; the time of year; unusual local conditions - may be significant and not obvious from the photograph.

Identification of Source--The name of the contributing officer or the original source will permit end-users to obtain additional information if such is required at a later date.

Date, Time and Direction--The date, time of day and camera direction further increase the value of photographs. In some cases even technical information on the camera equipment and its settings can be helpful, especially where mensuration and photo interpretation is called for.

Identification of Undeveloped Film--Undeveloped film may be submitted for processing but rolls should be numbered and correlated, if possible, with accompanying information describing the pictures taken. Some contributors find it easier to supply adequate identifying information after reviewing the picture. If posts wish to have photographs for their own use, copies will be furnished on request.

Submission of Photographs of Prominent Personalities--Photographs of prominent personalities, submitted in accordance with biographic reporting requirements, need not be duplicated since such photographs are made available to the Graphics Register. Other personality photographs may be submitted via the Graphics Coordinator.

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Submission of Photographs on Economic Subjects--When photographs of industrial, agricultural and other economic subjects are submitted in accordance with economic reporting requirements (CERP), one additional set should be forwarded to ICD/Graphics by an Operations Memorandum, Subject: FOREIGN PHOTOGRAPHS.

Security Classification--In general, photographs will be most useful if unclassified and unrestricted as to use. However, when the nature of the subject or the means of procurement require that photographs be classified, such facts should be clearly stated. The classification of photographs should be considered separately from classification of the covering Operations Memorandum. Information which may reveal the existence of an official photographic program should be classified CONFIDENTIAL.

#### PHOTOGRAPHIC REQUIREMENTS

Although at times there may be particular emphasis on certain critical areas and special objectives, current photographs are in general demand on all areas. Special and specific requirements are available for many countries. Photographs of any new construction or installations are always desired.

#### Personalities

Photographs of foreign persons of significance or potential significance to the American Government, including military, political, industrial, scientific and engineering personalities, labor leaders, and journalists.

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Cities and Towns

Approaches--Road, rail, water

General Layout

Main thoroughfares

Residential sections

Commercial districts

Manufacturing areas

Details

Landmarks

Principal buildings

Municipal

Industrial

Educational

Scientific

New construction

Public utilities

Water supply

Sewage disposal

Power plants

Gas plants

Transportation

Railroad stations

Marshalling yards and sidings

Repair facilities

Details (cont'd)

Public transportation

Communication

Telephone and other transmission  
facilities

Heavy Industry and Manufacturing

General Layout

Individual buildings

Interior views

Products (include name-plate data  
if possible)

Port and Dock Facilities

Approaches

Rail

Road

Water

General Layout

Loading facilities

Piers, docks, quays

Main buildings and shops

Details

Cargo handling facilities

Storage

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Details (cont'd)

Warehouses  
Transit sheds  
Refueling facilities  
Shipbuilding and repair  
Marine railroads  
Slips and pens  
Drydock  
Military and naval installations  
Railroad terminal facilities  
Ships and harbor craft  
Transportation  
Roads  
Main highways  
Secondary roads  
Junction points  
Bridge crossings  
Railroads  
Main lines  
Marshalling yards  
Bridges and tunnels  
Stations  
Repair and service facilities  
Transshipping facilities

Inland waterways  
Canals, dams, locks  
Rivers  
Cargo handling  
River craft  
Air facilities  
Sociological  
Native types, ethnic groups  
Costumes  
Customs  
Place of worship  
Cermonies  
Welfare activities  
Educational  
Medical  
Foreign missions  
Public safety  
Police  
Fire  
Typical street scenes  
Typical homes  
Living conditions of contrasting  
economic levels  
Working conditions

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Political

Public demonstrations  
Propaganda posters  
Communist activities  
Anti-Communist activities  
Headquarters and offices

Economic

Mineral resources

Mines  
Ore Processing  
Quarries  
Petroleum  
Oil wells  
Refineries  
Pipelines

Agricultural resources

Farms  
Equipment  
Products  
Grain elevators  
Refrigerating plants

Forestry

Fishing

Docks and equipment  
Canneries

Scientific

Hospitals

Medical laboratories  
Research laboratories  
Field explorations  
Precision instruments  
Calculators, computers  
Weapons development  
Nuclear reactors (power and research)

Topographic

Relief features  
Coasts and beaches  
Landmarks  
Drainage  
Vegetation  
Terrain

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TECHNICAL ASPECTS OF PHOTOGRAPHY

The following information is included as a ready reference guide for all photographers. It covers those basic aspects of photography which should be understood in order to obtain consistently good pictures. Because of the scope of the subject no attempt has been made to cover completely any specific phase but rather to include information of general significance.

**FILMS**

Films have four basic characteristics--speed, graininess, contrast, and sensitivity to color. Both black and white and color films are rated by a "film speed" number which indicates how sensitive that film is to light. The higher the number, the greater the sensitivity. The ratings are called "exposure indexes" or ASA numbers.

**Black and White Films**

| SPEED | CHARACTERISTICS                                 | ASA RATING* | EXAMPLES   |
|-------|---|-------------|--|
| Slow  | High quality, fine grain, best for enlargements | 10-40       | Kodak<br>Panatomic-X,<br>Adox KB-14,<br>Adox KB-17 |

(Continued on page 18)

Black and White Films -- Cont'd.

| SPEED  | CHARACTERISTICS  | ASA RATING* | EXAMPLES                                      |
|--------|--|-------------|---|
| Medium | General purpose use, fine to medium grain                                    | 50-160      | Kodak Plus-X,<br>Adox KB-21,<br>Ansco Supreme |
| Fast   | Use under limited light conditions or for fast action medium to coarse grain | 160 & up    | Kodak Tri-X,<br>Ilford HP-3                   |

\*All ASA ratings for daylight exposure.

Color Films--Several types of color films are now available with ratings of from ASA-10 to ASA-160. However, most color photography is done with slow speed films. The high speed color films are a rather recent innovation. In exposing color films it should be remembered that any color film has far less "latitude" than black and white. This means that camera settings must be more accurate and there should be less contrast between the brightest highlight and the darkest shadow. It is recommended that color photography be taken in sunlight and restricted to a period from two hours after sunrise and two hours before sunset. Most commonly used color films are as follows:

| <u>TYPE</u> | <u>ASA RATING</u> |
|-------------|-------------------|
| Kodachrome  | 10                |
| Ektachrome  | 32                |
| Anscochrome | 32                |

| <u>TYPE</u>         | <u>ASA RATING</u> |
|---------------------|-------------------|
| Super Anscochrome   | 100               |
| Hi-Speed Ektachrome | 160               |

The latter two are not recommended for general purpose photography.

#### EXPOSURES

Exposure Indexes--Each roll of film includes an instruction sheet which provides characteristics of the film and the ASA rating or Exposure Index. Some films are more sensitive to light than others and these indexes are numerical expressions of this sensitivity.

Exposure Values--The exposure value (light value) system is a system designed to simplify exposure settings by combining lens openings and shutter speeds into one adjustment. All combinations of f-numbers and shutter speeds which give the same exposure have the same EV (exposure value) number.

Exposure Meters--Exposure meters contain a photoelectric cell to measure the intensity of light and give the exact exposure setting. They are particularly useful when taking pictures under dark, cloudy skies, in shade, or late in the day where conditions make exposure guessing a bit hazardous.

#### f-STOP NUMBERS (lens opening or aperture)

Lens diaphragms are calibrated in units called "f-stops." The f-stop is simply a term used to define the diameter of a lens opening. The smaller the lens opening, the larger the f-stop number. Each f-stop admits twice the amount of light as the next larger f-stop number.

#### SHUTTER SPEEDS

Film is exposed only for a pre-set length of time such as  $1/50$  or  $1/100$  of a second. In most cameras shutters are adjustable to meet the photographer's needs. Fast shutter speeds stop action to prevent blurring the picture. Slow shutter speeds are used to allow longer exposure for absorbing available light. Camera shutter speed settings are directly dependent on camera-to-subject distance, direction, and speed of action. The closer the action, the faster the shutter speed. Horizontal action requires faster shutter speed than head-on movement. It is always safer to use a shutter speed that may be too brief rather than one that is too long.

#### DEPTH OF FIELD

The lens reproduces sharply not only that part of the subject on which it is actually focused but also a certain zone in front and behind. This zone, from the nearest point of sharp focus to the farthest point of sharp focus, is called depth of field. Large lens openings yield a shallow depth of field over which focus is critical. Small lens openings give greater depth of field but gather less light and require slower shutter speeds.

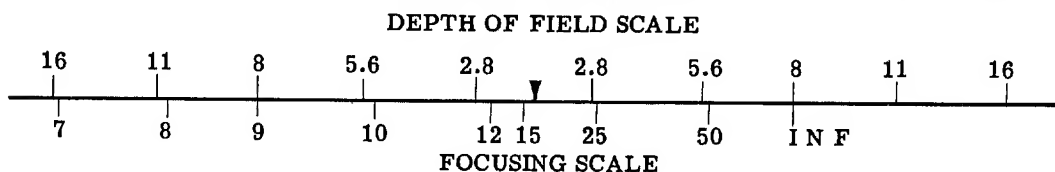


Illustration shows that if you set the focusing scale at approximately 15 feet and the aperture at f.8, everything in the zone from 9 feet to infinity will be sharp.

**SCALE**

Additional information which can be very valuable to eventual users is an indication of the approximate size of photographic subjects. Of course, for many photographs this may not be necessary, but for photographs of such subjects as roads, bridges, machinery, etc., it can be very helpful. For example, if a photograph of a bridge includes a person, a vehicle, or some other object of known size, the approximate measurements of the bridge can be determined.

**NOTE**

As a general rule, the instruction sheet which accompanies each roll of film gives sufficient information on exposure to enable the photographer to take good pictures under normal conditions. For example, in exposing Kodachrome film on a normal sunny day, consistently good pictures are produced by using a shutter speed of 1/50 and an aperture of between f5.6 and f.8. Under the same sunny day conditions, using Plus-X black and white film, one should use a shutter speed of 1/100 and an aperture of f-16. If the photographer can become accustomed to a "rule of thumb" setting for average conditions, it becomes quite simple to adjust to changed conditions which necessitate slower or faster shutter speeds, or a corresponding increase or decrease in the f-stop.

The other most common problem is in obtaining proper focus. The camera's range-finder will, of course, enable one to focus sharply on any subject. However, the whole problem of focus is considerably simplified if you have an understanding of depth of field. The rule of thumb here is to use as small an aperture as possible so as to take advantage of the lens' greatest depth of field. Here again, under normal sunny conditions, a simple setting on the depth of field scale will permit you to use the camera without constant time-

consuming use of the rangefinder. For example, in using Plus-X film with a setting of shutter speed - 1/100, aperture - F-8, and focusing scale at slightly over 15 feet, your camera can be operated as a fixed-focus camera with everything from 9 feet to infinity in focus. (See page 20)

#### AERIAL PHOTOGRAPHY

The two most common problems associated with aerial photography are haze and plane motion. Haze is always present in the atmosphere and tends to give color films a bluish cast. The best way to minimize this effect is through use of a "skylight" filter. You will also find the shady side of the plane to have less haze effect. Aim the meter toward the ground and for color photography increase the indicated exposure by using the next lower f-number or the next lower EV-number. For black and white film decrease the indicated exposure by one number.

When the plane is near the ground a shutter speed of 1/200 should be used to prevent blurring of the photo images. As a rule shutter speed of less than 1/100 should be avoided on all aerial photography. The camera should never be rested against a part of the plane such as the window because of the plane's vibrations. A cushion to support your elbows when you shoot will help insulate against some of the vibration.

GLOSSARY

- APERTURE -- In cameras, the aperture is usually variable, in the form of an iris diaphragm, and regulates the intensity of light which passes through a lens.
- BLOW-UP -- Photographic slang for enlargement.
- BRIGHTNESS RANGE -- Variation of light intensities from maximum to minimum. Generally refers to a subject to be photographed. For example, a particular subject may have a range of one to four, that is, four times the amount of light is reflected from the brightest highlight as from the least bright portion of the subject.
- BRILLIANCE -- A term denoting the degree of intensity of a color or colors.
- BULB -- A camera exposure setting which allows the shutter to remain open as long as the shutter release mechanism is depressed.
- CABLE RELEASE -- A flexible shaft for operating the camera shutter.
- CASSETTE -- The metal magazine in which 35mm film is packed.
- COLOR SENSITIVITY -- The response of a photographic emulsion to light of various wave lengths.
- COMPOSITION -- The balancing of shapes and tones to produce a pleasing effect.
- CONTRAST -- Subject contrast is the difference between the reflective abilities of various areas of a subject. Lighting contrast is the difference in intensities of light falling on various parts of subjects.
- DELAYED ACTION -- Another term for a self-timer -- a device on the shutter of the camera which permits the shutter to trip about ten seconds after it is released.

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**DEPTH OF FIELD** -- The distance between the nearest and farthest objects in the subject area which are in satisfactory focus.

**DIAPHRAGM** -- A device for controlling the amount of light which passes through a lens. It is usually an iris diaphragm.

**DIN** -- A European system of measuring film speed; little used in the United States.

**DOUBLE EXPOSURE** -- The intentional or unintentional recording of two exposures on a single frame.

**EMULSION** -- The light sensitive layer, consisting of silver salts suspended in gelatin, which is spread over the film.

**EMULSION SPEED** -- The factor which determines the exposure necessary to produce a satisfactory image. This is commonly expressed in Weston, General Electric, or American Standards Association (ASA) emulsion numbers which have been assigned to the film.

**EXPOSURE** -- The term is defined as the product of time and intensity of illumination acting upon the film.

**EXPOSURE METER** -- An instrument for measuring light intensity and determining correct exposure.

**EXPOSURE VALUE (EV) SYSTEM** -- A method of expressing exposure as a single number instead of the usual shutter speed and lens opening.

**f NUMBERS** -- A system for marking lens apertures. (See: Diaphragm)

**FILM** -- A sheet or strip of acetate, coated with a light-sensitive emulsion for exposure in a camera.

**FILTER, LIGHT OR COLOR** -- A piece of colored glass or gelatin, which is usually placed in front of the camera lens to compensate for the color sensitivity of the

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film. Also used to modify or exaggerate contrast.

**FILTER FACTOR** -- The number by which the correct exposure without the filter must be multiplied to obtain the same effective exposure with the filter.

**FIXED FOCUS** -- A term applied to a camera in which the lens is set permanently in such a position as to give good average focus for both nearby and distant objects.

**FOCAL LENGTH** -- The distance between the center of the lens and the point at which the image of a distant object comes into critical focus.

**FOCAL PLANE** -- The plane at which the image is brought to a critical focus. In other words, the position in the camera occupied by the film emulsion.

**FOCUS** -- The plane toward which the rays of light converge, to form an image after passing through a lens.

**FOG** -- A veil or haze over the negative or print, which is due to undesired chemical action or light.

**GRAIN** -- Used in speaking of individual silver particles or groups of particles in the emulsion which, when enlarged, become noticeable and objectionable.

**INFINITY** -- A distance setting on a camera focusing scale, beyond which all objects are in focus.

**LATENT IMAGE** -- The invisible image formed in an emulsion by exposure to light. It can be rendered visible by the process of development.

**LATITUDE** -- Exposure latitude is the quality of a film, plate or paper which allows variation in exposure without detriment to the image quality. Development latitude is the allowable variation in the recommended developing time without noticeable difference in contrast or density.

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LENS SHADE -- A detachable camera accessory used to shield the lens from extraneous light rays.

NEGATIVE -- A photographic image on film, in which the dark portions of the subject appear light and the light portions appear dark.

ORTHOCHROMATIC FILM -- A film not sensitive to red.

PANCHROMATIC FILM -- A film that is sensitive to all colors of the visible spectrum.

PARALLAX -- The apparent displacement of an object seen from different points. Commonly encountered in photography in the difference between the image seen in the view finder and that actually taken by the lens.

PERSPECTIVE -- The illusion of three dimensions created on a flat surface.

POSITIVE -- Any print or transparency made from a negative is termed a positive.

PRINT -- A photographic image reproduced on paper in black and white or color.

REVERSAL -- A process by which a negative image is converted to a positive. Briefly, a negative is developed, re-exposed, bleached, and redeveloped to form a positive.

SCALE -- Scale is the ratio of a linear dimension in the photograph to the corresponding dimension in the subject.

SHUTTER -- On a camera, a mechanical device which controls the length of time light is allowed to strike the film.

SLIDE -- See: Transparency.

SPEED -- In film, speed means sensitivity to light; a fast film is highly sensitive. In a lens, speed refers to relative aperture. In a camera shutter, speed refers to the time between opening and closing; a fast shutter permits very brief exposures.

STOP -- See Diaphragm.

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SYNCHRO-FLASH -- A type of flash photography in which a flash bulb is ignited at the same instant that the shutter is opened, the flash bulb being the primary source of illumination.

SYNCHRONIZER -- A device for synchronizing the shutter of a camera with a flashlamp so that the shutter is fully opened at the instant the lamp reaches its peak intensity.

TIME EXPOSURE -- Any exposure longer than the slowest shutter speed of a camera.

TONE -- In photography this usually applies to the color of a photographic image or, incorrectly, to any distinguishable shade of gray.

TRANSPARENCY -- An image on a transparent base, which must be viewed by transmitted light, commonly known as slides.

VIEW FINDER -- A viewing instrument attached to a camera, used to obtain proper composition.

FOR ADDITIONAL NOTATIONS  
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